REMARKS

In the April 21, 2003 Office Action, the Examiner noted that claims 1-16 were pending in the application and rejected the claims under 35 U.S.C. § 103. In rejecting the claims, U.S. Patents 6,091,803 to Thompson; 5,287,352 to Jackson et al.; 5,483,530 to Davis et al.; 5,453,984 to Mueller; and 5,365,577 to Davis et al. (References A-E, respectively) and an article by Hofer were cited. Claims 1-16 remain in the case. The Examiner's rejections are traversed below.

The Invention

The present invention is directed to a system which combines a telecommunication terminal apparatus, such as a telephone, connected to a switch, such as a private branch exchange, and also connected to a computer device, where the telecommunication terminal apparatus has an internal bus system with a bandwidth smaller than the bandwidth of an external bus system connecting the telecommunication terminal apparatus to the computer device. Due to the higher bandwidth of the external bus system and the faster processing capability of the computer device, data received by the telecommunication apparatus from the switch or produced by a user for transmission to the switch is routed to the computer device for processing and then returned to the telecommunication terminal apparatus for output to the user or transmission over the switch. In other words, the computer device serves as a codec for the telecommunication terminal apparatus.

The Prior Art

U.S. Patent 6,091,803 to Thompson

The Thompson patent is directed to a computer controlled apparatus in which a telephone 20 is connected to a personal computer 42 via a Universal Serial Bus (USB) interface 36, 38 and to a switch 46 via interfaces 26, 34. The personal computer controls operation of the telephone to provide enhanced services, such as conference calls. The telephone includes a "watch-dog program" that takes over control in the event that communication with the personal computer is interrupted. The link between the telephone and the switching system is "provided by digital network interfaces (DNIC) ... [which] provide ... 2B+D digital channels, wherein one or both of the B channels carries either digital voice or data signals ... [and the] D channel carries digital signaling signals" (column 3, lines 25-32). During normal computer telephony integration

(CTI) operation, the B channel(s) are routed "under control of the computer TAPI application ... For normal speech this connection is made exactly as if no enhanced services controller were present" (column 5, lines 45-49). The example given for other than normal speech is to use the personal computer as an answering machine (see column 5, lines 50-55).

U.S. Patent 5,287,352 to Jackson et al.

The Jackson et al. patent is directed to a system in which register overhead in a serial digital interface is reduced. In the Background of the Invention, a conventional telephone is described as having an internal bus with "a link interface, which translates the telephony information into the proper format and timing in accordance with the internal bus standard" (column 1, line 44-47). The example given for the internal bus standard is the General Circuit Interface (GCI) standard which describes "the structure of data frames and the timing of certain signals" (column 1, lines 51-52).

U.S. Patent 5,483,530 to Davis et al.

The Davis '530 patent is directed to a system for communicating with digital and analog devices via a single digital interface which "complies with CCITT standards (I.430) for the ISDN basic rate interface at the 'S/T' reference point (TE1), including Passive Bus connection" (column 12, lines 1-3). VTL logic is used to convert a time division multiplex interface (IOM-2) "which multiplexes the B channel with the D channel and the control information into a single serial interface ... into the asynchronous AIC interface native to the DSP" (column 12, lines 6-9).

Article by Hofer

The Hofer article describes the IOM2 serial bus interface for interconnection of ISDN ICs. In this interface, every frame consists of three IOM channels. The first IOM channel corresponds in structure and function to the basic channel carrying user data (D, B1, B2) between a terminal and an ISDN. The second IOM channel also corresponds to the basic channel; however, it includes Inter-Chip Communication channels IC1 and IC2 which are used for transferring user data within the terminal. Thus, they carry the same kind of information as the B channels; however, the data on the IC1 and IC2 channels do not reach the ISDN. The following eight bits provide another Monitor Data channel and the last eight bits provide six further C/I bits and two handshake bits for the monitor channel. The third IOM channel is also used for communication within the terminal.

U.S. Patent 5,453,984 to Mueller

The Mueller patent is directed to multi-service communication terminal equipment in local networks in which manufacturer specific U-subscriber line interfaces are used.

U.S. Patent 5,365,577 to Davis et al.

The Davis '577 patent is directed to a telecommunication display system using less complicated equipment than conventional video phones. This is accomplished by adding a display terminal to a conventional telephone, where the display terminal is controlled from a remote location, so that locally connected equipment is not required to provide control functionality. When the system disclosed by Davis '577 is used with ISDN, it is unnecessary to communicate with the user of the system over the telephone to determine the equipment connected and voice communications can be communicated without interruption when the display terminal is used.

Rejections under 35 U.S.C. § 103

In paragraphs 1-9 on pages 2-5 of the Office Action, claims 1, 2, 6, 8, 9, 12, 14 and 15 were rejected under 35 U.S.C. § 103(a) as unpatentable over Thompson in view of Jackson et al. Paragraph 3 setting forth the rejection of claims 1 and 14 started with claim language followed by citations of reference numerals and text in Thompson. Then, at page 3, line 11 comments were made regarding how signals would pass through the telephone to the computer and back and Jackson et al. was cited with regard to the internal bus in a conventional telephone. From page 3, line 19 to page 4, line 9, assertions were made regarding the obviousness that the bus system in an ISDN telephone would distribute data at 192 kbps, while USB is capable of transmitting data at up to 12 Mbps.

None of the cited portions of either Thompson or Jackson et al. have been found to teach or suggest an operating mode for "forwarding transmission data produced by said telecommunication terminal apparatus to said computer device ... for processing in said computer device by said processor and sending processed transmission data to said telecommunication terminal apparatus" (claim 1, lines 21-25) then "rerouting processed transmission data received by said telecommunication terminal apparatus to said interface, for forwarding to said switch" (claim 1, lines 26-28). As discussed above, Thompson discloses that normal speech is processed in the telephone "exactly as if no enhanced services controller were present" (column 5, line 49). On the other hand, the first operating mode recited in both claim 1

and claim 14 routes data to the computer device that is produced by the telecommunication terminal apparatus for processing prior to sending the processed transmission data to the switch for transmission to another telecommunication terminal apparatus.

In other words, claims 1 and 14 recite off-loading to the computer device processing that would otherwise be performed by the telephone, so that the telephone can be as low cost as possible. Contrary to the assertions in the Office Action, the bandwidth of the connection between the telephone and the switch (192 kbps for ISDN) does not make it obvious that the internal bus of the telecommunication terminal apparatus (telephone) has the same bandwidth. It is common for the bandwidth of internal buses to be orders of magnitude faster than external interfaces, just consider an AGP bus and an RS-232 interface. In addition, by using the recited lower capacity bus in the telecommunication terminal apparatus, the first bus system connecting the computer device to the telecommunication terminal apparatus can be connected to other devices as well.

Furthermore, Thompson only discloses providing enhanced services when the computer is connected to the telephone. Nothing has been cited in the prior art suggesting that there is an operating mode in which signals produced by the telephone locally connected to the computer are routed through the computer for processing prior to transmission. For the above reasons, it is submitted that claims 1 and 14 patentably distinguish over Thompson in view of Jackson et al.

As discussed above, it is submitted that none of the cited prior art provide any suggestion of modifying the system taught by Thompson to process data produced by the telephone in the computer prior to transmission as recited in claims 1 and 14. Since claims 2-13 depend from claim 1 and claims 15 and 16 depend from claim 14, it is submitted that all of the claims patentably distinguish over the prior art for the reasons discussed above.

Furthermore, paragraph 4 on page 4 of the Office Action only refers to decoding being performed in the prior art. Nothing was cited or found in either Thompson or Jackson et al. regarding encoding transmission data by an external processor as explicitly recited in claim 2. Therefore, it is submitted that claim 2 more clearly distinguishes over the cited prior art.

In addition, claim 11 specifically recites "speech data originating from a microphone of said telecommunication terminal apparatus being transmitted to said computer device via said first bus system and the processed transmission data being sent to said switch via said telecommunication terminal apparatus" (claim 11, last four lines). The rejection of claim 11 set forth in paragraph 20 on pages 9-10 of the Office Action cited Davis '577 as disclosing such

processing of speech data. However, as discussed above, Davis '577 if anything teaches away from such operation, since no computer device is included in the telecommunication display system 8 illustrated at the top of Fig. 1. As described above, the telecommunication display system 8 taught by Davis '577 consists of essentially two "dumb" terminals, one for audio (a conventional telephone) and the other for video (display terminal 14 capable of being controlled remotely, i.e., over PSTN 50). Nothing was cited or has been found in Davis '577 that is relevant to the type of processing of data recited at the end of claim 11. Therefore, it is submitted that claim 11 also more clearly distinguishes over the prior art by specifically reciting that the processed transmission data includes "speech data originating from a microphone of said telecommunication terminal apparatus" (claim 11, lines 9-10).

Claim 16 recites limitations similar to claim 11 and therefore, it is submitted that claim 16 also more clearly distinguishes over the prior art than claim 14 from which it depends, for the reasons discussed above with respect to claim 11.

Summary

It is submitted that the references cited by the Examiner, taken individually or in combination, do not teach or suggest the features of the present claimed invention. Thus, it is submitted that claims 1-16 are in a condition suitable for allowance. Reconsideration of the claims and an early Notice of Allowance are earnestly solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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